

MODIS Technical Team Meeting
Thursday, October 2, 2003
GSFC Building 33, Room E125

Vince Salomonson chaired the meeting. In attendance were Barbara Conboy, Dorothy Hall, Jack Xiong, Eric Vermote, Bob Barnes, Bruce Guenther, Wayne Esaias, Steve Kempfer, Ed Masuoka, Michael King, Skip Reber, and Shaida Johnston, with Yolanda Harvey taking the minutes.

1.0 Upcoming Meetings

- MODIS Science Team Meeting, Baltimore-Washington International Airport (BWI) Marriott — POSTPONED – Date TBD
- EOS Science Working Group on Data (SWGD), November 5-6, Greenbelt Marriott, MD
<http://swgd.gsfc.nasa.gov/schedule.htm>
- NPP Science Team Kickoff Meeting, November 4-6, 2003. Annapolis, MD.
- 2003 Fall AGU Meeting. December 8-12, San Francisco, California, USA. Abstracts deadlines past.
<http://www.agu.org/meetings/fm03/>

2.0 Meeting Minutes

2.1 General Discussion

Salomonson reported that during the Aqua telecon, he heard that the Team Leader/PI letters have been drafted, but that results from the rest of the "Recompetition" NRA are not likely before the end of the month.

2.2 Instrument Status

Xiong reported that both instruments are doing fine, except for the SSR anomaly on the Terra MODIS instrument, detailed below.

Salomonson reported that the Aqua project/FOT wants to have the Aqua spacecraft do a maneuver that would send it temporarily a bit beyond the +/- 20 km track, and wanted to know if we have any objections. Discussion indicated that this is not a problem. Xiong asked if this would be happening on October 12, Salomonson said yes.

2.2.1 Terra MODIS

Xiong reported that the SSR anomaly occurred late on September 24th; two supersets shut down, the next day two more. The first two affect MODIS, the second two affect ASTER. This resulted in a partial data loss of 5-15 percent (depending on how often data were downloaded from the SSR). There was a meeting with the MISR group on September 29, 2003, to discuss whether we can use one or two of their supersets. MISR agreed to give one for MODIS' use. On Thursday September 25th, our two bad supersets were put on the bad list while we were uplinked. Fortunately, we seem to have recovered all of the data, and still have 35 operational supersets. This happened previously in 2001 and ended up working out successfully. (See the reports on the issue at <http://modis.gsfc.nasa.gov/news/group.php?classification=terra>)

2.2.2 Aqua MODIS

Xiong reported that MCST is still working on the Aqua calibration ephemeris issue. There are still concerns for Aqua ephemeris, since it affects all reflected solar (rsb) bands calibration. One ephemeris problem, according to the flight operation team (FOT), starts from the recent yaw demo, which happened on August 12, 2003. There is an additional ephemeris discontinuity that could not be explained from MOD03 data. If they get this resolved, MCST can produce consistent Aqua m1 data to be sent to Miami for tests. Esaias asked if Xiong was referring to the data-day 450 glitch, and Xiong said no, he's referring to data-day 225. The ephemeris concerns due to MOD03 data were identified (thanks to help from Robert Wolfe's group), and the algorithm should be able to catch and resolve it. If it gets missed, it results in a flag. Essentially, they cannot produce Aqua M1 data at this time.

On October 16, there will be a thermal emissive band calibration review (mostly for the SeaWiFS group) that is open for attendance. This meeting will *not* cover the thermal (instrument or focal plane temperature) impact on the rsb calibration, which they're still working on using the Terra MODIS data.

2.3 DAAC

Kempler reported that the GES DAAC was offline for the 6A-08 ECS upgrade; it finished and went back online at 10 pm October 1st. Right now they're waiting to start on the Oceans reprocessing. The distribution backlog went down to 11 TB. There was an ancillary data retrieval problem that resulted from precautions implemented because of Hurricane Isabel. NOAA ancillary data is now completely recovered.

2.4 MODAPS

Masuoka reported that they have finished reprocessing the Terra Atmospheres data, and they should be finished with Land in mid-October. The EDC has been ingesting data quickly, which has accelerated the reprocessing.

Masuoka said that he went to a meeting of the EOSDIS Element Tiger Team where they addressed the issue of maintaining current services at the EOSDIS while evolving components of the data system to part of their charter from HQ. He also noted that he and Robert Wolfe are chairing a working group to document and implement reusable software components within the context of the SEEDS (Strategic Evolution of Earth science enterprise Data Systems) follow-on work.

Masuoka said that he met with the IOT people. The IOT Sun workstations, which prepare command uploads for the MODIS instrument, weren't being actively administered from the perspective of Unix security. Part of the problem was that the Raytheon-provided software broke when upgrades were done to the workstation, and the other part was that MCST had not been actively patching the system since they viewed this as a Raytheon responsibility. To get around both problems, SDST is installing a Linux firewall in front of the Sun workstations to restrict access and Owen Steinert of MCST has agreed to actively manage the Sun workstations.

Masuoka said that he sent around a history of MODIS product volumes at the DAACs. As for the status of product volumes at the LP DAAC, once the anticipated changes in the Land Level 2g product suite occur in Collection 5, the volume of land products archived

in the LP DAAC will drop significantly and the silos that store Terra and Aqua products will not fill up. Based on this analysis, Masuoka concluded that the land product volumes at the LP DAAC should no longer be an issue. Salomonson mentioned a draft memo that Skip Reber plans to send to Mike Luther, which addresses the question of how future product volume growth will be reviewed and approved.

2.5 Oceans

Esaias reported that after a long series of deliberations and testing, the decision has been made to proceed with reprocessing the Aqua MODIS SST and Ocean Color products. They put in 17 changes that significantly improved the time series and increased consistency. These changes will make for a very scientifically useful set of products, so their official recommendation is to commence reprocessing.

It's clear that there are further changes that will be needed for the Ocean Color product; those changes will require implementing L1 calibration as well as L2 algorithm changes. Their initial focus will be to make those changes for the Aqua instrument, then apply them to Terra in Collection 5. The approach for Aqua and Terra had been to adapt to inconsistencies in L1 by developing additional corrections in L2, but have found that due to the high degree of correlation between L1 bias and atmospheric correction terms, its almost impossible to do that. So the proposed approach is to identify and remove artifacts in the L1 radiance data, then to proceed more efficiently with the geophysics in the oceans portion. The Oceans group is working with MCST to better quantify the effects earthshine, SD BRDF, temperature, and polarization. If those are successful, then that should greatly aid the RADCOR correction we will have to make, and will ultimately make the data more uniform. MODIS does well in the latitudes where MOBY is, but gets more inconsistent the farther away it moves, and they're currently working out why.

Masuoka was concerned that making extensive changes to the L1B data would delay Miami's work on a new Aqua reprocessing RADCOR, as well as pushing back the Oceans reprocessing itself past a March 2004 start. Esaias said yes, a delay is likely because of the level of work involved in changing the L1B data. Johnston raised the issue of the logistics of such a change, and Masuoka noted that NASSA HQ has been very reluctant to increase product volumes in the DAAC archives, which this change would do.

Esaias noted that focal plane temperature differences could affect *all* visible bands, not just the Oceans bands. Xiong said that MCST isn't seeing much variation. A discussion followed on the similarities and differences between SeaWiFS, MOBY, and MODIS calibration methods. Esaias commented that we've done the best we could at the time with Terra. His main concern was a seasonal bias that he would like to see removed, and said that he would also like to see a 0.1 percent or better precision level. A discussion followed on MODIS' uncertainty percentages. Esaias said that the data are currently quite useful scientifically, but need improvement for seasonal and latitudinal trends. Xiong said that he would work with Esaias on the issue.

Masuoka said that he would pursue the approach of MODAPS sending the L1A Ocean subset to University of Miami with Bob Evans now that the Ocean reprocessing is underway. This will help reduce the GES DAAC distribution backlog.

2.6 Cryosphere

Dorothy Hall said the Snow Albedo product is out as a Beta product and Sea Ice Global products will be out shortly. New Snow and Sea Ice CMG monthly products will also be out shortly as beta products.

2.7 Atmospheres

Michael King noted that the Atmosphere reprocessing is done, except for the Cloud Mask contamination, which is due to the NISE problem. King mentioned that the GES DAAC has been developing a MODIS atmosphere online visualization and analysis tool, which is available on its Goddard-only web site. He found it to be a useful tool for data exploration both in space and time, and once it is released he will post it on the Atmosphere site as well. King noted that both Terra and Aqua imaged cloud contrails over the Washington DC area on September 7, 2003, and plans to do some studies of the contrails from these products. Both satellites had nadir views, and the contrails, as observed by Dave Atlas from the ground, were most spectacular.

In the Collection 5 reprocessing, Atmosphere will replace their ecosystem classification data used in Collection 4 for the Atmosphere monthly Level 3 product with albedo calculated from 16-day land surface reflectance (created by Eric Moody).

3.0 Action Items

3.1 New Action Items

3.1.1 Masuoka to pursue MODAPS sending L1A Ocean subsets to University of Miami.

3.2 Old Action Items

3.2.1 Tech Team to further discuss TRW using MODIS data for validation of the NPP/NPOESS production process.

Status: Open.

3.2.2 PIP to develop list of items to go into work plan for the new contract (EMD).

Status: Open.

3.2.3 Ed Masuoka to invite a NOAA delegate to the weekly MODIS Tech Team meetings or the PIP meetings.

Status: Open. Masuoka sent the invitation.

3.2.4 Kempler to bring back some proposals for how the disciplines can deal with the DAAC distribution problem.

Status: Open.